A comparative study of the forest avifauna in Mount Elgon National Park

Stephen J. Kings

In June–September 1996, Project Elgon '96, an Aberdeen University expedition, studied human impact on the flora and fauna of Mt. Elgon's montane forest, east Uganda. Mt. Elgon, Africa's eighth highest mountain at 4,321 m, is an extinct volcano straddling the Ugandan–Kenyan border (Fig 1). The mountain plays an important role, supplying water, timber and other forest products to the inhabitants of the area. Recently established as a National Park (Fig 2), it also supports a rich flora and fauna, in need of conservation. Prevention of habitat degeneration and species loss is particularly vital as pressure increases on the park to provide water, timber and tourist income, for an increasing population.

Fig 1. Map of Africa showing position of Mt. Elgon in Uganda (inset).

Over a six week period, the expedition investigated the conflicting environmental and human factors contributing toward changes in the montane forest environment and land use, assessed human impact on vegetation, diversity and abundance of small mammal communities, and compiled an inventory of the forest avifauna.

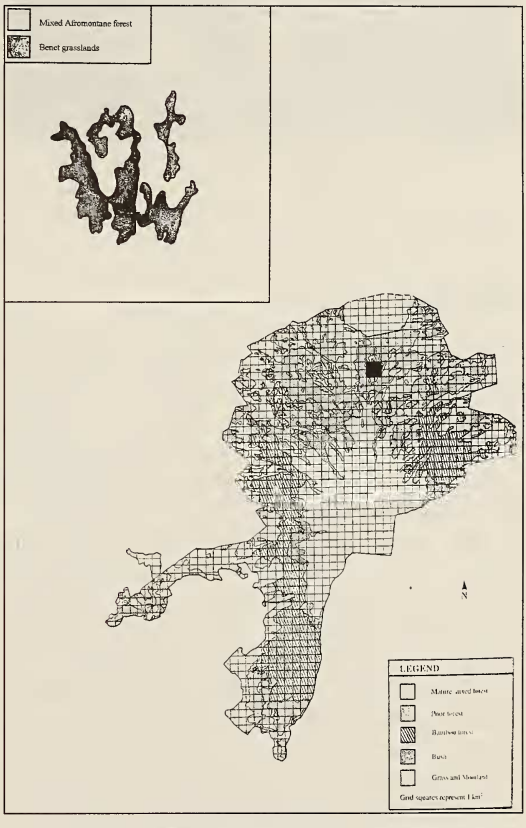

Fig 2. Map of Mt. Elgon with position of study area (inset) from Howard[4] and van Heist[15].

African forest habitats have been subdivided into montane and lowland types[8]. However, Diamond & Hamilton[2] suggest a broad overlap exists between the two forest habitat types separated by an altitudinal gradient. The only montane forest in eastern Uganda exists on Mt. Elgon[6] and, perhaps in consequence, some west and south African birds reach their eastern and northern limits on the mountain[3]. The area's avifauna is well known, although much previous research was based in Kenya[3] and many bird species await confirmation in Uganda, while some are unrecorded in Mt. Elgon National Park.

Avifaunal communities often provide a strong indication of environmental change. Many species are indicative of their habitat and much information can be derived from avifaunal community composition. This paper is a brief account of the

Lowland forest on Mt. Elgon, Uganda (Stephen J. Kings)

birds surveyed in forest habitats in Mt. Elgon National Park.

Study Area

From Kapchorwa (outside the park), the expedition established camp in the Benet (the local tribe) grassland at Piswa (c2,800 m) on the boundary between montane grassland and forest. The upper montane forest avifauna (2,850 m) was surveyed at two study sites, c1ha in size and c3.2 km from Piswa, designated 'disturbed' and 'undisturbed' forest.

The disturbed forest had been intensively grazed until 1983 and only lightly grazed since. At this low-gradient site, there was a closed canopy, dominated by *Afrocrania volkensii*, a tree species restricted to the Afromontane region, and fruiting at the time of this study. The understorey vegetation was 1–2 m in height, dominated by the shrub *Mimulopsis alpina* and the ground layer was dominated by *Pilea tetraphylla*.

The second site was steep-gradient undisturbed forest, characterised by sparse tree cover, a dense 2–3 m shrub layer, dominated by *Mimulopsis alpina* and the bamboo *Arundinaria alpina*, and a sparse ground layer. A forest stream flowed through it.

Methodology

A combination of mist-netting and timed species-count techniques were used to sample the avifaunal composition of the two study areas. The two methods were performed separately on alternate days.

Mist-netting

A total of eight mist-nets were erected at each site. All were opened at c08.00 hr and closed at c18.00 hr. The length of time open varied, depending on rainfall. When open they were checked every 30–45 mins. To prevent a decline in catch rate, nets were moved to new locations, within the study area, every 2–3 days. Each net was four m in height and therefore only sampled understorey birds. Birds caught were identified, weighed, measured and photographed before release.

Timed species-counts

Mist-netting sampled only birds in the ground and shrub strata. Therefore, timed species-counts were used to sample the wider forest bird community. To reduce over-representation of conspicuous species, a list of birds within 20 m of the observer and a full list were made[11]. This technique was used at the same study sites in all weather conditions. A one-hour count was made at both sites four times a day. Both auditory and visual identifications were made.

The bird inventory was also compiled from observations made during the expedition's trek through lowland forest and at Piswa (see Appendix).

Results

Mist-netting

Of the 13 species captured in mist-nets, two were caught only in disturbed forest: White-throated Greenbul *Phyllastrephus albigularis* and Uganda Woodland-Warbler *Phylloscopus budongoensis*, both of which are dense forest specialists[1,14]. Seven species were caught in both disturbed and undisturbed forest. The most frequently caught were the endemic race of White-starred Robin *Pogonocichla stellata elgonensis* (distinguished by the absence of yellow margins to the outer tail feathers[7]), Olive Thrush *Turdus olivaceus*, Yellow White-eye *Zosterops senegalensis senegalensis* and Streaky Seedeater *Serinus striolatus*. Mountain Yellow Warbler *Chloropeta similis*, White-eyed Slaty Flycatcher *Melaenornis fischeri* and Abyssinian Crimsonwing *Cryptospiza salvadorii* were less frequently caught at both sites.

Birds indicative of the undisturbed forest ground strata were Abyssinian Ground-Thrush *Zoothera piaggiae*, Brown Woodland-Warbler *Phylloscopus umbrovirens*, Mountain Illadopsis *Illadopsis pyrrhoptera* (another forest specialist) and Oriole-Finch *Linurgus olivaceus*. All these species are typical representatives of the undergrowth avifauna.

White-starred Robin *Pogonocichla stellata* (Stephen J. Kings)

Timed species-counts

Timed species-counts produced a greater variety of birds, as they sampled the entire forest bird community. Three additional species were recorded in disturbed forest: Rufous-chested Sparrowhawk *Accipiter rufiventris*, Mountain Buzzard *Buteo oreophilus* and Olive Pigeon *Columba arquatrix*. A further eight species were observed in the undisturbed forest: Lanner Falcon *Falco biarmicus*, Scaly Francolin *Francolinus squamatus*, Hartlaub's Turaco *Tauraco hartlaubi*, Forest Wood-hoopoe *Phoeniculus castaneiceps*, White-headed Wood-hoopoe *Phoeniculus bollei*, Yellow-billed Barbet *Trachyphonus purpuratus*, Brown-backed Scrub Robin *Cercotrichas hartlaubi* and White-browed Crombec *Sylvietta leucophrys*, another inhabitant of the ground strata.

Benet Grassland, Piswa

The most striking and spectacular birds were Black-and-white Casqued Hornbills *Ceratogymna subcylindricus*, which were displaying, Long-crested Eagle *Lophaetus occipitalis* and Verreaux's Eagle *Aquila verreauxii*. Other species frequently recorded were: Speckled Mousebird *Colius striatus*, Common Stonechat *Saxicola torquatus axillaris* (a partial migrant which breeds at higher altitudes and disperses to lower areas in the non-breeding season[9]), Cape Robin-chat *Cossypha caffra*, Hunter's Cisticola *Cisticola hunteri*, Northern Double-collared Sunbird *Nectarinia preussi*, Golden-winged Sunbird *Nectarinia reichenowi*, Olive Sunbird *Nectarinia olivacea*, a pair of scavenging White-necked Ravens *Corvus albicollis* and Black-crowned Waxbill *Estrilda nonnula*.

Most interesting was the opportunity to study the two races of Baglafecht Weaver *Ploceus baglafecht reichenowi* and *P. b. stuhlmanni* side-by-side! Individuals of these taxa were observed in the heathland and grassland at Piswa and were distinctive in the field; it was possible to compare adults of both sexes. Adult males of the race *reichenowi* have a small black eye patch, extending down the cheek and a black nape, neck and mantle. The rest of the face is ochre yellow. Females have a black face, crown, nape, neck and mantle. There was no yellow above the moustachial except on the chin. Females are very similar to the males and females of the race *stuhlmanni*, although the latter have a grey-brown nape, neck and mantle.

Kapchorwa–Piswa

The lower forest provided sightings of Eastern Bronze-naped Pigeon *Columba delegorguei*, White-crested Turaco *Tauraco leucolophus*, Black Saw-wing *Psalidoprocne pristoptera*, Common Bulbul *Pycnonotus barbatus*, Brown-chested Alethe *Alethe poliocephala*, White-bellied Tit *Parus albiventris*, Tacazze Sunbird *Nectarinia tacazze*, Pied Crow *Corvus albus* and Black-headed Waxbill *Estrilda atricapilla*.

Discussion

The most remarkable finding was the observation of two races of Baglafecht Weaver in the same area of scrub. Several races of Baglafecht Weaver are recognised[5]. Race *reichenowi* is found in Kenya and northern Tanzania, whereas *stuhlmanni* ranges from east Zaïre and western Tanzania to southern Uganda. It is possible that the distribution of two intermediate forms of the Baglafecht Weaver overlap at Mt. Elgon. If this is the case, it may provide evidence that the mountain lies at the distributional limits of two distinctive subspecies.

Although Uganda Woodland-Warbler has previously been recorded on Mt. Elgon[15], it is regarded as endemic to the Central African highlands[12].

Lanner Falcon and Long-crested Eagle were the only species recorded during this study previously considered to require confirmation[15]. Another finding was the presence of two specialist forest species in disturbed forest only and many generalist forest species found in both undisturbed and disturbed forest habitats. One may predict that the two specialist species would have a smaller distribution than the generalist species and would conform to the hypothesis that generalist species are more widely distributed than specialist species[10].

This survey elucidated only presence or absence of species in the study areas. Very little data exist on montane avifaunal communities and their ecology, with the exception of altitudinal distribution[14]. One can only speculate that differences in the forest avifaunal composition may be due to human activities in the area. No conclusive evidence for potential differences in the avifauna of undisturbed and disturbed forest habitats could be gleaned from our study.

It is necessary to develop an understanding of any negative effects arising from local human activities on Mt. Elgon's environment and to develop measures to reduce them. There is an urgent need to collect more information on forest communities and their ecology and it is hoped that further research can aid their conservation.

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This paper is dedicated to the memory of Sabila George Paul, who died during a field expedition at the end of 1996. ☆

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Appendix: List of birds recorded on Mt. Elgon by the expedition

Rufous-chested Sparrowhawk *Accipiter rufiventris*
Verreaux's Eagle *Aquila verreauxii*
Mountain Buzzard *Buteo oreophilus*
Long-crested Eagle *Lophaetus occipitalis*
Lanner Falcon *Falco biarmicus*
African Hobby *Falco cuvieri*
Scaly Francolin *Francolinus squamatus*
Olive Pigeon *Columba arquatrix*
Eastern Bronze-naped Pigeon *Columba delegorguei*
Hartlaub's Turaco *Tauraco hartlaubi*
White-crested Turaco *Tauraco leucolophus*
Speckled Mousebird *Colius striatus*
White-headed Wood hoopoe *Phoeniculus bollei*
Forest Wood hoopoe *Phoeniculus castaneiceps*
Black-and-white Casqued Hornbill *Ceratogymna subcylindricus*
Yellow-billed Barbet *Trachyphonus purpuratus*
Black Saw-wing *Psalidoprocne albiceps*
White-throated Greenbul *Phyllastrephus albigularis*
Common Bulbul *Pycnonotus barbatus*
Brown-chested Alethe *Alethe poliocephala*
Brown-backed Scrub Robin *Cercotrichas hartlaubi*
Cape Robin-Chat *Cossypha caffra*
White-starred Robin *Pogonocichla stellata*
Common Stonechat *Saxicola torquata*
Northern Olive Thrush *Turdus abyssinicus*
Abyssinian Ground Thrush *Zoothera piaggiae*
Mountain Yellow Warbler *Chloropeta similis*
Hunter's Cisticola *Cisticola hunteri*
Uganda Woodland Warbler *Phylloscopus budongoensis*
Brown Woodland Warbler *Phylloscopus umbrovirens*
White-browed Crombec *Sylvietta leucophrys*
White-eyed Slaty Flycatcher *Melaenornis fischeri*
Mountain Illadopsis *Illadopsis pyrrhopterum*
White-bellied Tit *Parus albiventris*
Yellow White-eye *Zosterops senegalensis*
Olive Sunbird *Nectarinia olivacea*
Northern Double-collared Sunbird *Nectarinia preussi*
Golden-winged Sunbird *Nectarinia reichenowi*
Tacazze Sunbird *Nectarinia tacazze*
Common Fiscal Shrike *Lanius collaris*
White-necked Raven *Corvus albicollis*
Pied Crow *Corvus albus*
Grey-headed Sparrow *Passer griseus*
Baglafecht Weaver *Ploceus baglafecht*
Pin-tailed Whydah *Vidua macroura*
Abyssinian Crimsonwing *Cryptospiza salvadorii*
Black-headed Waxbill *Estrilda atricapilla*
Black-crowned Waxbill *Estrilda nonnula*
Oriole-Finch *Linurgus olivaceus*
Streaky Seedeater *Serinus striolatus*